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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is used for the curtain air bag developed to the vehicle indoor flank of an automobile, and relates to the suitable occupant crash protection for cars.

[0002]

[Description of the Prior Art] Before, the air bag of a driver's seat and a passenger seat has spread widely as one of the insurance equipment of an automobile. Moreover, in addition to the air bag of the above front seats, in recent years, an air bag which is developed in the side of the vehicle interior of a room is also spreading. Besides the so-called side air bag prepared in the side of a sheet, the so-called curtain air bag 1 continued and developed from a front pillar 11 to a rear pillar 13 is developed, and the air bag prepared in such the side is put in practical use, as shown in drawing 3 .

[0003] In such a curtain air bag (only henceforth an air bag) 1, the body 2 of an air bag is stored along the direction of vehicle length near the side roof rail (or side roof panel) 12 part, if it is really shocked from the car side by collision etc., will spread so that the side face of the vehicle interior of a room may be covered on the whole, and will ease the impact (especially impact to a head) to crew.

[0004] Hereafter, when the installation structure of the conventional air bag 1 is briefly explained using drawing 4 and drawing 5 , it is a X-X sectional view [ in / drawing 4 , and / in drawing 5 / drawing 4 ]. [ the typical side elevation of the car body (body) 20 of an automobile ] As shown in drawing 5 , the center pillar 10 offers outer panel 10a arranged in the car outside, and inner panel 10b arranged in the car inside, and is constituted, and each of these panels 10a and 10b. are welded at the edge (not shown) of the direction of vehicle length.

[0005] Moreover, in the upper part of the center pillar 10, while the upper bed section of outer panel 10a and car outside edge 12a of the side roof rail 12 carry out a polymerization and are joined, the upper bed section of inner panel 10b and car inside edge 12b of the side roof rail 12 carry out a polymerization, and are joined. Moreover, the pillar trim 14 is arranged in the vehicle interior-of-a-room side of inner panel 10b, and the vehicle interior-of-a-room side of inner panel 10b is covered with this pillar trim 14. Moreover, the upper bed of the pillar trim 14 is connected to headlining 15.

[0006] And the body 2 of an air bag is established between this pillar trim 14 and inner panel 10b. As shown in drawing 5 , the body 2 of an air bag is being fixed to the above-mentioned inner panel 10b by the bolt 16 grade through the bracket 3. Moreover, the projection piece 31 extended caudad is formed in the bracket 3, and engagement section 14a formed in this projection piece 31 at the pillar trim 14 and one has contacted. In addition, the body 2 of an air bag is usually folded up the shape of a fan, and in the shape of bellows, or is rolled round by tubed.

[0007] Next, an operation of the curtain air bag 1 attached in this way is explained briefly. First, if a side collision (side \*\*) occurs, the body 2 of an air bag will start expansion, and will develop it towards the empty vehicle interior of a room between headlining 10 and the pillar trims 14. On the other hand, by the impact of side \*\*, as arrow-head \*\* shows, inner panel 10b of the center

pillar 10 moves to a vehicle interior-of-a-room side. Moreover, since the pillar trim 14 is being fixed to inner panel 10b, the pillar trim 14 also invades into a vehicle interior-of-a-room side with migration of inner panel 10b (refer to the two-dot chain line in drawing).

[0008] Although it is the upper part of inner panel 10b and is fixed to the location P near the joint of inner panel 10b and the side roof rail 12, its rigidity is comparatively high, and even if it is this part at the side \*\* time, there is comparatively little deformation, so that the body 2 of an air bag may be illustrated. For this reason, there is less movement magnitude of the body 2 of an air bag than inner pillar 10b or the pillar trim 14.

[0009] Therefore, there was a possibility of the pillar trim 14 tending to invade into expansion within the limits of an air bag 1, and an air bag 1 having been in the middle of expansion, having interfered in the pillar trim 14, and barring ideal expansion of an air bag 1 at the time of side \*\*. It has prevented that above-mentioned engagement section 14a is prepared in order that such pillar trim 14 may carry out trespass prevention, and are that engagement section 14a engages with the projection piece 31 of a bracket 3 at the time of side \*\*, control relative migration with the body 2 of an air bag, and the pillar trim 14, and PIRATORIMU 4 invades into expansion within the limits of an air bag.

[0010]

[Problem(s) to be Solved by the Invention] However, in such a Prior art, in order to be equal to trespass of the pillar trim 14, high rigidity is required of engagement section 14a. On the other hand, since the pillar trim 14 is usually formed by resin, it is difficult the trim to acquire high rigidity. For this reason, it is necessary to add L character-like sheet-metal components to engagement section 14a conventionally, and the technical problem that components mark and weight increase occurs.

[0011] In addition, it was not what has the same composition as the conventional technique which each mentioned above with the technique indicated by these official reports, i.e., the configuration fixed to the part with the bracket holding an air bag near the side roof rail of the center pillar upper part, and solves the above-mentioned technical problem although the technique also relevant to JP,2000-168482,A and JP,2000-33845,A is indicated.

[0012] As it was originated in view of such a technical problem and this invention can avoid interference with an air bag and a pillar trim with a simple configuration, it aims at offering the occupant crash protection for cars which enabled it to develop an air bag certainly.

[0013]

[Means for Solving the Problem] For this reason, the occupant crash protection for cars of this invention according to claim 1 The air bag by which expansion expansion is carried out in the car-body flank upper part empty vehicle interior of a room, and the side roof panel which constitutes the above-mentioned car-body flank upper part, The bracket which fixes the above-mentioned air bag to the above-mentioned car body, and the pillar panel by which the end side was connected with the above-mentioned side roof panel, The pillar trim in which the vehicle interior-of-a-room side of the above-mentioned pillar panel is attached by the above-mentioned pillar panel with a wrap is offered. The above-mentioned bracket It has the installation section attached in the above-mentioned pillar panel, and an attaching part holding the above-mentioned air bag. The above-mentioned installation section It is attached in the above-mentioned pillar panel in a lower part from the duplication part of the above-mentioned side roof panel and the above-mentioned pillar panel, and the above-mentioned attaching part is characterized by being arranged from the upper bed of the above-mentioned pillar trim by the cross direction at the vehicle interior-of-a-room side.

[0014] Since according to such a configuration the air bag attached in the pillar panel also moves to a vehicle interior-of-a-room side even if a pillar panel moves to a vehicle interior-of-a-room side at the time of side \*\*, the relative variation rate of an air bag and a pillar panel is controlled. Therefore, it can prevent that a pillar trim and an air bag interfere at the time of expansion of an air bag, and an air bag can be developed certainly.

[0015] In addition, in an above-mentioned configuration, a flange is formed in a side roof panel and, as for the installation part of a bracket, it is more desirable than this flange that it is a lower part. Moreover, as for the occupant crash protection for cars of this invention according to claim

2, in a configuration according to claim 1, the end side of the above-mentioned pillar panel has the duplication part which overlaps the above-mentioned side roof panel, and the soffit edge of the above-mentioned side roof panel is characterized by being caudad located from the above-mentioned duplication part.

[0016] Therefore, since the soffit edge of a side roof panel is caudad located from the duplication part, the rigidity in the installation section of a bracket becomes lower, and the relative displacement of an air bag and a pillar trim is controlled certainly.

[0017]

[Embodiment of the Invention] When a drawing explains the occupant crash protection for cars concerning 1 operation gestalt of this invention hereafter, the typical sectional view in which drawing 1 shows the important section configuration, and drawing 2 are side elevations of a car body where this invention is applied. In addition, although drawing 1 mainly shows the X'-X' cross section in drawing 2, a broken line shows the Y-Y cross section in drawing 2 in part.

[0018] As shown in drawing 1, the center pillar 10 offers outer panel 10a arranged in the car outside, and inner panel 10b arranged in the car inside, and is constituted, and each of these panels 10a and 10b are welded at the edge (not shown) of the direction of vehicle length. Moreover, in the upper part of the center pillar 10, while the upper bed section of outer panel 10a and car outside edge 12a of the side roof rail (side roof panel) 12 carry out a polymerization and are joined, the upper bed section of inner panel (pillar panel) 10b and car inside edge 12b of the side roof rail 12 carry out a polymerization, and are joined.

[0019] Moreover, the pillar trim 14 is arranged in the vehicle interior-of-a-room side of inner panel 10b, and inner panel 10b is covered with this pillar trim 14. Moreover, the upper bed of the pillar trim 14 is connected to headlining 15. And the air bag 1 is formed between this pillar trim 14 and inner panel 10b. This air bag 1 is the so-called curtain air bag, and it is prepared between the front pillar 11 and the rear pillar 13, covering it, and if it is really shocked from the car side by collision etc., it will develop from the car flank upper part so that the side face of the vehicle interior of a room may be covered on the whole (refer to drawing 3). In addition, the configuration so far is the same as that of a Prior art.

[0020] By the way, as shown in drawing 1, the body 2 of an air bag is being fixed to the above-mentioned inner panel 10b by the bolt 16 grade through the bracket 3. And in the occupant crash protection for cars of this invention, as shown in drawing 1 and drawing 2, the point which has caudad the attaching point P over inner panel 10b of the bracket 3 which fixes the body 2 of an air bag rather than the conventional thing, and the body 2 of an air bag differ from the thing of the former [ point / which is arranged in the vehicle interior-of-a-room side rather than pillar trim 14 upper bed ] greatly.

[0021] That is, to the bracket 3, it has installation section 3a fixed to a car body 20, and attaching part 3b holding the body 2 of an air bag, among these installation section 3a is extended caudad and attached in inner panel 10b so that it may illustrate. Here, the attaching point P is set as the downward center pillar 10 rather than but [ not near the side roof rail 12 ] the side roof rail 12, as shown in drawing 1 and drawing 2. This is because the pillar trim 14 moves with a center pillar 10 at the time of a side collision (side \*\*). And the relative variation rate of the body 2 of an air bag at the time of side \*\* and the pillar trim 14 can be controlled by fixing a bracket 3 in a lower part rather than the side roof rail 12 in this way.

[0022] Especially, with this operation gestalt, the attaching point P is caudad set up rather than the soffit of flange (soffit edge) 12c (refer to the broken line in drawing 1) of the side roof rail 12. It is because rigidity is comparatively low since \*\*\*\*\* with the side roof rail 12 becomes there is not less in a lower part than this flange 12c, although inner panel of center pillar 10 10b overlaps the side roof rail 12 above this flange 12c in this, it is united and it has high rigidity, and it moves like [ the center pillar 10 ] the pillar trim 14 at the time of side \*\*.

[0023] Therefore, by fixing a bracket 3 to downward inner panel 10b rather than flange 12c, the relative displacement of the body 2 of an air bag and the pillar trim 14 can be controlled further, and the situation which bars expansion of an air bag 1 can be avoided. Moreover, in the cross direction (longitudinal direction in drawing 1), the body 2 of an air bag is arranged rather than the upper bed of the pillar trim 14 at the vehicle interior-of-a-room side, and, thereby, can avoid

now certainly interference with the pillar trim 14 and the body 2 of an air bag at the time of air bag expansion.

[0024] Since the occupant crash protection for cars concerning 1 operation gestalt of this invention is constituted as mentioned above, a trim panel 14 also moves it to a vehicle interior-of-a-room side while a center pillar 10 moves to a vehicle interior-of-a-room side by the impact of a collision at the time of a side collision (refer to the two-dot chain line in drawing 1 ).

Moreover, the body 2 of an air bag bulges from between the pillar trim 14 and headlining 15, and carries out expansion expansion quickly.

[0025] At this time, the attaching point P of the bracket 3 which fixes the body 2 of an air bag to a car body 20 The comparatively low location of the rigidity among inner panel 10b of the center pillar 10, since it is specifically set as the location lower than soffit flange 12c of the side roof rail 12, As the two-dot chain line in drawing shows, a bracket 3 moves with physical relationship relative to the pillar trim 14 held, and the relative displacement of the body 2 of an air bag and the pillar trim 14 is controlled.

[0026] There is an advantage that the situation where the pillar trim 14 invades into expansion within the limits of an air bag 1 is avoided by this, and interference with an air bag and a pillar trim can be avoided certainly. Moreover, even if it is the case where the pillar trim 14 moves to a vehicle interior-of-a-room side more mostly than inner pillar 10b by arranging the body 2 of an air bag to a vehicle interior-of-a-room side rather than the upper bed of the pillar trim 14, there is an advantage that interference with an air bag 2 and the pillar trim 14 is certainly avoidable.

[0027] Moreover, according to this invention, there is no addition of new components etc. and there is an advantage of cost and the number of assemblers seeming not to increase. In addition, the protective device for cars of this invention is not limited to an above-mentioned configuration, and can be variously changed in the range which does not deviate from the meaning of this invention. For example, although the above-mentioned operation gestalt explained the case where inner panel 10b of the center pillar 10 was applied as a pillar panel, it is applicable to the front pillar and rear pillar in addition to center pillar 10.

[0028]

[Effect of the Invention] As explained in full detail above, according to the occupant crash protection for cars of this invention, there is an advantage which can avoid the situation where a pillar trim invades into expansion within the limits of an air bag with a simple configuration, and can avoid interference with an air bag and a pillar trim certainly. Therefore, there is no possibility that expansion of an air bag may be checked, and there is an advantage that an air bag can be developed certainly. Moreover, it is not necessary to newly add components and there is an advantage of cost and the number of assemblers seeming not to increase.

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**CLAIMS**

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[Claim(s)]

[Claim 1] The air bag by which expansion expansion is carried out in the car-body flank upper part empty vehicle interior of a room, and the side roof panel which constitutes the above-mentioned car-body flank upper part, The bracket which fixes the above-mentioned air bag to the above-mentioned car body, and the pillar panel by which the end side was connected with the above-mentioned side roof panel, The pillar trim in which the vehicle interior-of-a-room side of the above-mentioned pillar panel is attached by the above-mentioned pillar panel with a wrap is offered. The above-mentioned bracket It has the installation section attached in the above-mentioned pillar panel, and an attaching part holding the above-mentioned air bag. The above-mentioned installation section It is the occupant crash protection for cars which is attached in the above-mentioned pillar panel in a lower part from the soffit edge of the above-mentioned side roof panel, and is characterized by arranging the above-mentioned attaching part from the upper bed of the above-mentioned pillar trim by the cross direction at the vehicle interior-of-a-room side.

[Claim 2] It is the occupant crash protection for cars according to claim 1 characterized by locating caudad the soffit edge of the above-mentioned side roof panel from the above-mentioned duplication part by the end side of the above-mentioned pillar panel having the duplication part which overlaps the above-mentioned side roof panel.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the typical sectional view showing the important section configuration of the occupant crash protection for cars concerning 1 operation gestalt of this invention.

[Drawing 2] It is the typical side elevation of a car body where the occupant crash protection for cars concerning 1 operation gestalt of this invention is applied.

[Drawing 3] It is drawing for explaining a common curtain type air bag.

[Drawing 4] It is the typical side elevation of the car equipped with the conventional curtain air bag.

[Drawing 5] It is a typical sectional view for explaining a Prior art, and is the X-X sectional view of drawing 4 .

[Description of Notations]

1 Air Bag (Curtain Air Bag)

2 Body of Air Bag

3 Bracket

3a Installation section

3b Attaching part

10 Center Pillar

10a Outer pillar

10b Inner pillar (pillar panel)

12 Side Roof Rail (Side Roof Panel)

12c Soffit edge

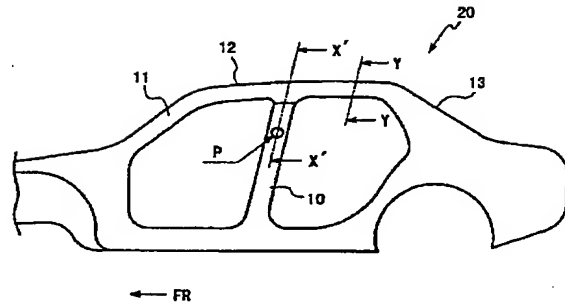
14 Pillar Trim

20 Car Body

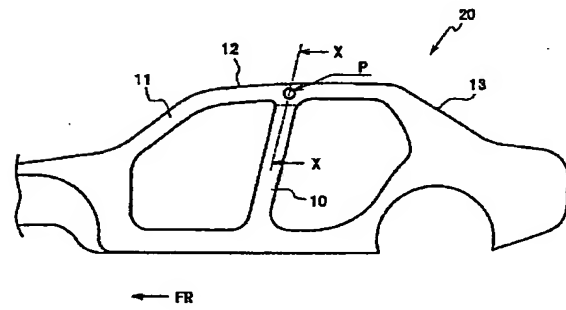
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【圖 2】



【図3】



【図5】

